

## ABSTRACT

A process and system for evaluating the deterministic behavior of a packet switching network including subscriber stations connected to each other through at least one switch, the behavior defined as deterministic if any packet sent on the network from a source subscriber station joins the destination subscriber station(s) within a limited time. The process and system determines if each output port from each switch on the network satisfies the relationship:

$$\left[ 1 + \text{int} \left( \frac{(\text{Jitter } In)_i + \text{max Latency}}{BAG_i} \right) \right] * (\text{max frame duration}) \leq \text{latency}$$

*i number of virtual links passing through the buffer*

in which: the max latency value is a maximum residence time in an output buffer of a switch, this value may be different for each switch in the network, BAG<sub>i</sub> is a minimum time between two consecutive frames belonging to a virtual link *i*, before they are transmitted, (Jitter In)<sub>i</sub> is Jitter associated with a virtual link *i* that represents a time interval between a theoretical instant at which a frame is transmitted, and its effective transmission that may be before or after the theoretical instant, and (max frame duration)<sub>i</sub> is a duration of a longest frame on the virtual link *i*.